Amendments to the Claims:

This listing will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 (currently amended). A laser device having a laser medium in a resonator cavity comprising:

a) means for pumping energy into said laser medium to increase gain of said laser device;

b) active Q-switch means having open and close states for controlling loss modulation of said resonator cavity; and [[,]]

c) passive Q-switch means for further controlling loss modulation of said resonator cavity, wherein loss modulation control from active and passive Q-switch means enable generation of a short width, high peak power pulse at a lasing wavelength.

2 (original). The laser device as claimed in Claim 1, wherein loss modulation effects of active and passive Q-switch means are timed to minimize cavity loss at which time a high peak power pulse is generated.

3 (original). The laser device as claimed in Claim 2, capable of generating high peak power pulse having a width ranging between from about 50ps to 10ns.

4 (original). The laser device as claimed in Claim 2, wherein when said active Q-switch means is in a closed state, said laser medium absorbs energy to a certain gain level.

5 (original). The laser device as claimed in Claim 2, wherein said passive Q-switch means saturates at a time after the active Q-switch enters an open state to enable generation of a high peak power pulse of short duration.

6 (original). The laser device as claimed in Claim 2, further comprising means for triggering the active Q-switch means to provide an open time window adjusted to avoid occurrence of sub-pulsing.

7 (withdrawn). The laser device as claimed in Claim 6, wherein said active Q-switch means comprises an acousto-optical (AO) device for controlling loss modulation at a predetermined pulse repetition frequency.

8 (original). The laser device as claimed in Claim 6, wherein said active Q-switch means comprises an electro-optical (EO) crystal for controlling loss modulation at a predetermined frequency.

9 (withdrawn). The laser device as claimed in Claim 2, wherein said active Q-switch means comprises a rotating chopper device having open slits for controlling loss modulation at a predetermined frequency.

10 (original). The laser device as claimed in Claim 2, wherein said laser medium is a solid-state laser material comprising one selected from the group comprising: Nd:YAG, and Nd:$YV0_4$.

11 (original). The laser device as claimed in Claim 2, wherein said passive Q-switch means comprises a solid-state saturable absorber.

12 (original). The laser device as claimed in Claim 2, wherein said saturable absorber includes Cr^{4+}:YAG.

13 (original). The laser device as claimed in Claim 11, wherein said solid-state laser material and said solid-state saturable absorber is physically bonded together.

14 (original). The laser device as claimed in Claim 10, wherein said solid-state laser material and said solid-state saturable absorber are integrated.

15 (original). The laser device as claimed in Claim 14, wherein said integrated solid-state laser material and said solid-state saturable absorber comprise a YAG crystal co-doped with Nd^{3+} and Cr^{4+}.

16 (currently amended). A hybrid Q-switch for a laser device having a laser medium being pumped with energy comprising:

a solid-state saturable absorber element for controlling loss modulation of said laser device;

an active Q-switch element having open and closed states for controlling loss modulation of said laser device and positioned in series with said laser medium and said absorber element; and [[,]]

means for adjusting timing of said open and closed states of the active Q-switch element, wherein combined loss modulation control from active Q-switch and saturable absorber elements enable generation of a short width, high peak power pulse at a lasing wavelength.

17 (original). The hybrid Q-switch as claimed in Claim 16, wherein when said active Q-switch means is in a closed state, said laser medium absorbs energy to a certain gain level.

18 (original). The hybrid Q-switch as claimed in Claim 17, wherein said saturable absorber element saturates at a time after the active Q-switch enters an open state to enable generation of a high peak power pulse of short duration.

19 (original). The hybrid Q-switch as claimed in Claim 18, wherein an open state of said active Q-switch means is adjusted to avoid occurrence of sub-pulsing.

20 (original). The hybrid Q-switch as claimed in Claim 18, wherein said active Q-switch element includes an electro-optical crystal triggered to adjust time of said open and close states.

21 (withdrawn). The hybrid Q-switch as claimed in Claim 18, wherein said active Q-switch element includes an acousto-optical crystal triggered to adjust said open and close states and thereby control optical gain of said laser medium.

22 (withdrawn). The hybrid Q-switch as claimed in Claim 18, wherein said active Q-switch element includes a rotating chopper device having one or more slits each of predetermined width for adjusting time of said open and close states.

23 (withdrawn). The hybrid Q-switch as claimed in Claim 22, wherein a diameter of the chopper is less than about 12.0 cm in diameter.

24 (withdrawn). The hybrid Q-switch as claimed in Claim 22, wherein a width of each opening slit is larger than a diameter of a laser beam emitted by said laser device.

25 (withdrawn). The hybrid Q-switch as claimed in Claim 22, further including two overlapped identical choppers each having slits, said choppers having their slits crossover so that a final opening width is changeable by adjusting a degree of mutual crossover.

26 (currently amended). A method of operating a laser device having a laser medium comprising the steps of:

a) pumping the laser medium to increase gain of said laser device;

b) controlling loss modulation of a resonator cavity of said device by active Q-switch means; and

c) controlling loss modulation of a resonator cavity by passive Q-switch means,

wherein loss modulation control from active and passive Q-switch means enable generation of a short width, high peak power pulse at a lasing wavelength.

27 (original). The method as claimed in Claim 26 , further including the step of timing loss modulation effects of active and passive Q-switch means to minimize cavity loss.

28 (original). The method as claimed in Claim 26 , wherein said controlling loss modulation step b) includes:

closing said active Q-switch means for a time sufficient for said laser medium to absorb energy to a certain gain level.

29 (original). The method as claimed in Claim 26, wherein said absorber element saturates at a time after the active Q-switch enters an open state to enable generation of a high peak power pulse of short duration.

30 (original). The method as claimed in Claim 26, further comprising the step of: triggering the active Q-switch means to provide an open time window adjusted to avoid occurrence of sub-pulsing.